LISTING OF CLAIMS:

Claims 1-82 are pending. Please amend claims 1 and 42, and cancel claims 45-82, as shown in the below listing of claims that will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A power converter, comprising:

a primary switch that repetitively switches between a conductive state and a substantially non-conductive state to selectively connect an input of said power converter to an electrical power source;

a detection circuit that senses the approximate switch timing of said primary switch to provide a timing signal representative of the primary switch timing; and

a rectifier device that includes a conduction control terminal and a bi-directional conduction path selectively enabled by said conduction control terminal, such that when said conduction control terminal is driven ON said bi-directional conduction path is activated to conduct an output current provided to an output of said power converter, and when said conduction control terminal is driven OFF said bi-directional conduction path is de-activated, wherein said conduction control terminal is driven OFF based on said timing signal to de-activate said bi-directional conduction path at a time such that the magnitude of the current conducted by said rectifier device is not substantial relative to the magnitude of the output current and such that substantial cross-conduction does not occur.

2. (Original) The power converter according to claim 1, wherein said conduction control terminal is driven OFF relative to said timing signal at a delay time when the output current conducted by said bi-directional conduction path to said output reduces to a substantially negligible amount.

3. (Original) The power converter according to claim 2, wherein said delay time is a function of the output current.

4. (Original) The power converter according to claim 3, wherein said delay time is a function of the voltage of said electrical power source.

5. (Original) The power converter according to claim 1, wherein said rectifier is driven ON based on a second timing signal that is independent of any timing signal representative of the switching time of said primary switch.

6. (Original) The power converter according to claim 5, wherein said second timing signal, at least during times when said timing signal transitions between levels corresponding to the primary switch switching between the conductive state and the substantially non-conductive state, is not substantially in phase with nor substantially a mirror of the approximate switch timing of said primary switch.

7. (Original) The power converter according to claim 1, wherein said rectifier is driven ON based on said timing signal.

8. (Original) The power converter according to claim 1, wherein the amplitude of a drive signal applied to said conduction control terminal to drive the rectifier ON is modulated as a function of the output current, such that when the output current

decreases below an approximate threshold the drive signal is incapable of driving the rectifier ON in response to said second timing signal, said rectifier thereby being maintained OFF while the output current is below the approximate threshold.

9. (Original) The power converter according to claim 1, further comprising a transformer having a primary winding and a secondary winding, wherein said primary winding is connected to said input such that said primary switch selectively couples the primary winding to said electrical power source, said secondary winding selectively conducts the output current, and said rectifier is connected to said secondary winding.

10. (Original) The power converter according to claim 9, wherein said detection circuit includes an auxiliary winding of said transformer closely coupled to said primary winding to sense the voltage across said primary winding, said timing signal corresponding to a sense voltage induced in said auxiliary winding.

11. (Original) The power converter according to claim 10, further comprising a capacitor that capacitively couples said sense voltage induced in said auxiliary winding to provide a drive signal that drives said conduction control terminal of said rectifier.

12. (Original) The power converter according to claim 10, wherein said voltage induced in said auxiliary winding is conductively coupled to said conduction control terminal of said rectifier.

13. (Original) The power converter according to claim 12, further comprising a driver having an output that drives said conduction control terminal and an input that is conductively coupled to said auxiliary winding.

14. (Original) The power converter according to claim 9, wherein said detection circuit includes a capacitor that is coupled to the voltage across said primary switch to provide said timing signal.

15. (Original) The power converter according to claim 14, wherein said primary switch is a MOSFET having a drain terminal, a source terminal, and a gate terminal that is the conduction control terminal, and said capacitor is conductively connected to the drain of said MOSFET.

16. (Original) The power converter according to claim 9, wherein said detection circuit includes a capacitor that is coupled to a control terminal of said primary switch to provide said timing signal, said control terminal operative to selectively enable said conductive state and said substantially non-conductive state.

17. (Original) The power converter according to claim 16, wherein said primary switch is a MOSFET that is connected in series with said primary winding and has a gate terminal that is said control terminal, and wherein said capacitor is conductively connected to the gate terminal.

18. (Original) The power converter according to claim 9, wherein said detection circuit includes a second transformer having a sense winding connected to a control terminal of said primary switch, and a drive winding closely coupled to

said sense winding, said timing signal corresponding to the voltage induced in said drive winding based on the voltage waveform on said control terminal, wherein said control terminal is operative to selectively enable said conductive state and said substantially non-conductive state.

19. (Original) The power converter according to claim 9, wherein said rectifier conducts the output current when said primary switch is in the substantially non-conductive state, and wherein said rectifier is driven OFF in response to said timing signal transitioning between levels corresponding to the primary switch switching from the substantially non-conductive state to the conductive state.

20. (Original) The power converter according to claim 19, wherein said rectifier is driven ON in response to said timing signal transitioning between levels corresponding to the primary switch switching from the conductive state to the substantially non-conductive state.

21. (Original) The power converter according to claim 19, wherein said conduction control terminal is driven OFF relative to said timing signal transitioning between levels corresponding to the primary switch switching from the substantially non-conductive state to the conductive state at a delay time when the output current conducted by said bi-directional conduction path to said output reduces to a substantially negligible amount.

22. (Original) The power converter according to claim 21, wherein said delay time is a function of the output current.

23. (Original) The power converter according to claim 22, wherein said delay time is a function of the voltage of said electrical power source.

24. (Original) The power converter according to claim 9, wherein said rectifier conducts the output current when said primary switch is in the conductive state, and wherein said rectifier is driven OFF in response to said timing signal transitioning between levels corresponding to the primary switch switching from the conductive state to the substantially non-conductive state

25. (Original) The power converter according to claim 24, wherein said rectifier is driven ON in response to said timing signal transitioning between levels corresponding to the primary switch switching from the substantially non-conductive state to the conductive state.

26. (Original) The power converter according to claim 24, wherein said conduction control terminal is driven OFF relative to said timing signal transitioning between levels corresponding to the primary switch switching from the conductive state to the substantially non-conductive state at a delay time when the output current conducted by said bi-directional conduction path to said output reduces to a substantially negligible amount.

27. (Original) The power converter according to claim 26, wherein said delay time is a function of the output current.

28. (Original) The power converter according to claim 27, wherein said delay time is a function of the voltage of said electrical power source.

29. (Original) The power converter according to claim 9, further comprising a second rectifier connected to said secondary winding.

30. (Original) The power converter according to claim 29, wherein said second rectifier is a passive diode that conducts the output current when said primary switch is in the conductive state, wherein said rectifier conducts the output current when said primary switch is in the substantially non-conductive state, said rectifier is driven OFF in response to said timing signal transitioning between levels corresponding to the primary switch switching from the substantially non-conductive state to the conductive state, and wherein the output current commutates between said rectifier and said second rectifier when the primary switch switches between the substantially non-conductive state and the conductive state.

31. (Original) The power converter according to claim 29, wherein said second rectifier is an active switch device that conducts the output current when said primary switch is in the conductive state, said rectifier conducts the output current when said primary switch is in the substantially non-conductive state, said second rectifier is driven OFF to selectively de-activate conduction of the output current by the second rectifier in response to said timing signal transitioning between levels corresponding to the primary switch switching from the conductive state to the substantially non-conductive state, and said rectifier is driven OFF in response to said timing signal transitioning between levels corresponding to the primary switch switching from the substantially

non-conductive state to the conductive state, and wherein the output current commutates between said rectifier and said second rectifier when the primary switch switches between the substantially non-conductive state and the conductive state.

32. (Original) The power converter according to claim 31, wherein said second rectifier is driven ON to selectively activate conduction of the output current by the second rectifier in response to said timing signal transitioning between levels corresponding to the primary switch switching from the substantially non-conductive state to the conductive state, and wherein said rectifier is driven ON in response to said timing signal transitioning between levels corresponding to the primary switch switching from the conductive state to the substantially non-conductive state.

33. (Original) The power converter according to claim 32, wherein said conduction control terminal is driven OFF relative to said timing signal transitioning between levels corresponding to the primary switch switching from the substantially non-conductive state to the conductive state at a first delay time when the output current conducted by said bi-directional conduction path to said output reduces to a substantially negligible amount, and wherein said second rectifier is driven OFF relative to said timing signal transitioning between levels corresponding to the primary switch switching from the conductive state to the substantially non-conductive state at a second delay time when the output current conducted by said second rectifier reduces to a substantially negligible amount.

34. (Original) The power converter according to claim 33, wherein said first delay is a function of the value of said output current at approximately the instant prior to said primary switch switching from the substantially non-conductive state to the conductive state.

35. (Original) The power converter according to claim 34, wherein said second delay is a constant delay.

36. (Original) The power converter according to claim 32, wherein said power converter is a forward converter, said second rectifier is a forward rectifier, and said rectifier is a flywheel rectifier.

37. (Original) The power converter according to claim 36, wherein said power converter is a resonant reset forward converter.

38. (Original) The power converter according to claim 9, wherein the topology of said power converter is selected from the group consisting of forward, flyback, double-ended, and Polykarpov-type.

39. (Original) The power converter according to claim 9, wherein said power converter is a resonant reset forward converter and said rectifier is a flywheel rectifier.

40. (Original) A system comprising a power converter as recited in claim 1.

41. (Original) The system according to claim 40, wherein said system is a power supply.

42. (Currently Amended) A power converter comprising:

a primary switch that repetitively switches between a conductive state and a substantially non-conductive state to selectively connect an input of said power converter to an electrical power source;

a rectifier that includes a conduction control terminal and a bi-directional conduction path selectively enabled by said conduction control terminal, such that when said conduction control terminal is driven ON said bi-directional conduction path is activated to conduct an output current provided to an output of said power converter, and when said conduction control terminal is driven OFF said bi-directional conduction path is de-activated; and

a drive control circuit that provides a timing signal representative of the approximate switch timing of said primary switch and that, based on said timing signal, drives said conduction control terminal OFF to de-activate said bi-directional conduction path <u>at a time such that the magnitude of the current conducted by said rectifier device is not substantial relative to the magnitude of the output current and such that substantial cross-conduction does not occur</u>.

43. (Original) The power converter according to claim 42, wherein said drive control circuit drives said conduction control terminal OFF relative to said timing signal at a delay time when the output current conducted by said bi-directional conduction path to said output reduces to a substantially negligible amount.

44. (Original) The power converter according to claim 42, further comprising a driver having an output that drives said conduction control terminal and an input that is coupled to said timing signal.

Claims 45-82 (Canceled)